Space Weather Forecast

Issued on Friday, 20 September 2024 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor/Moderate radio blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Activity measured has been Low, with low level Common class flares from various regions.
There are now six sunspot regions on the disc. Two regions have moderate magnetic complexity, although one will soon rotate off the visible disc. However, a moderately sized region in the southeast quadrant is the most significant region on the disc, with a complex magnetic configuration, although another region is close to also becoming magnetically complex as well. The remaining two sunspot groups are small and simpler.
A large upper-coronal dimming was visible in AIA211 with a slight western solar hemisphere bias near 40-50N between 19/0600-1200UTC. This may correlate with ejecta becoming visible from the north of the occulting disc on Lasco C2 , which has been analysed as not being an Earth-directed Coronal Mass Ejections (CME).

Solar Wind / Geomagnetic Activity: Solar wind parameters indicated a slightly disturbed solar wind environment, possibly either residual CME influence from the CME arrival on the 16th, or from weak coronal hole influence, or a combination of both. The solar wind was predominantly at Slightly Elevated levels, gradually declining from between 450-500km/s to end the day around 400 km/s. The solar wind peaked at 529 km/s at 19/0836 UTC. The strength of the solar wind's magnetic field was weak to moderate and the north-south component varied, mostly weakly. The resulting geomagnetic activity started at Minor Geomagnetic storm intervals then declined to become Quiet to Unsettled.

Energetic Particles / Solar Radiation: No solar radiation storms were observed, with levels falling to Background in the wake of the enhancement following the 16 September CME.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to moderate activity is expected, with a chance of isolated Moderate-class flares. There is a continued slight chance of an isolated Strong-class flares, especially as new or returning regions are likely to rotate onto the disc during the period.

Solar Wind / Geomagnetic Activity: No CMEs feature in the forecast. The solar wind is expected to be at Background to Slightly Elevated levels, due to possible occasional weak coronal hole influence from a small coronal hole in the northwest. Geomagnetic activity is expected to be mainly Quiet to Unsettled, but with a chance of isolated Active intervals.

Energetic Particles / Solar Radiation: High energy proton flux will most likely remain at Background, with the daily risk of a Slight Chance of enhancement. The most likely sources would be from the moderate to complex magnetically structured regions on the disc.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	5	5	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	40	40	40	40
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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